

What is claimed is:

1. A frequency characteristics-variable amplifying circuit comprising:

- a pair of resonant circuits, each of which is
- 5 connected between a first potential and a second potential, and has an inductor and a variable capacitor which forms a resonant section with said inductor;
- a pair of output terminals, each of which outputs an output signal from corresponding resonant circuit; and
- 10 a pair of switch sections, one of said switch sections switching on and off between one of said resonant circuit and said first potential or said second potential based on one of complementary signals inputted to said switch sections to make said one of resonant circuit to output a
- 15 high or low signal determined by said first potential or said second potential to said corresponding output terminal, and the other of said switch sections switching on and off between the other of said resonant circuit and said first potential or said second potential based on the other of
- 20 complementary signals inputted to said switch sections to make said the other of resonant circuit to output a high or low signal determined by said first potential or said second potential to said corresponding output terminal,
- wherein amplified signals of said complementary
- 25 signals are outputted to said pair of output terminals, and frequency characteristics at the time of amplification can be varied by adjusting the capacitance value of said variable capacitor.

2. The frequency characteristics-variable amplifying circuit according to Claim 1, wherein

said variable capacitor is a varactor element.

3. The frequency characteristics-variable amplifying
5 circuit according to Claim 1, wherein

said each switch section is a transistor one of whose source and drain is connected to said output terminal, said second potential is applied to the other, and to whose gate, said input signal is inputted.

10 4. The frequency characteristics-variable amplifying circuit according to Claim 3, wherein

the other of the transistor's source and drain of said each switch section is commonly connected, a bias transistor is connected between this common connecting point and said
15 second potential, and a bias voltage is applied to a gate of this bias transistor, and said bias transistor controls said second potential according to said bias voltage.

5. A frequency characteristics-variable amplifying circuit comprising:

20 a pair of resonant circuits, each of which has an inductor a first potential being applied to one end of said inductor, and a variable capacitor which forms a resonant section with said inductor;

a pair of output terminals, each of which is connected
25 to the other end of said inductor of corresponding resonant circuit; and

a pair of switch sections, each of which is connected between corresponding output terminal and a second potential,

and one of said switch sections switching on and off between one of said output terminals and said second potential based on one of complementary signals inputted to said switch sections, and the other of said switch sections switching on
5 and off between the other of said output terminals and said second potential based on the other of complementary signals inputted to said switch sections,

wherein amplified signals of said complementary signals are outputted to said pair of output terminals, and
10 impedance frequency characteristics of said resonant circuit are adjusted by adjusting the capacitance value of said variable capacitor so as to rectify the waveform of said output signals.

6. The frequency characteristics-variable amplifying
15 circuit according to Claim 5, wherein

said variable capacitor is a variable capacitor to whose one end, the other end of said inductor is connected and to the other end, a control voltage to control the capacitance value of this variable capacitor is applied, and
20 said resonant circuit further has a resistor connected between a connecting point between said inductor and said variable capacitor and said output terminal.

7. The frequency characteristics-variable amplifying circuit according to Claim 5, wherein

25 said variable capacitor is a varactor element.

8. The frequency characteristics-variable amplifying circuit according to Claim 5, wherein

said each switch section is a transistor one of whose

source and drain is connected to said output terminal, said second potential is applied to the other, and to whose gate, said input signal is inputted.

9. The frequency characteristics-variable amplifying
5 circuit according to Claim 8, wherein

the other of the transistor's source and drain of said each switch section is commonly connected, a bias transistor is connected between this common connecting point and said second potential, and a bias voltage is applied to a gate of
10 this bias transistor, and said bias transistor controls said second potential according to said bias voltage.

10. A semiconductor integrated circuit device having the frequency characteristics-variable amplifying circuit according to Claims 1.

15 11. A semiconductor integrated circuit device having the frequency characteristics-variable amplifying circuit according to Claims 5.